Title: Method For Capturing And Displaying A Variable...
Inventor: Jean-Claude ARTONNE et al.
Exp. Mail No.: EV312205282US **Cust. No.:** 000570
Atty. Doc. No.: 210000.0025/25US (100137/US/WO)

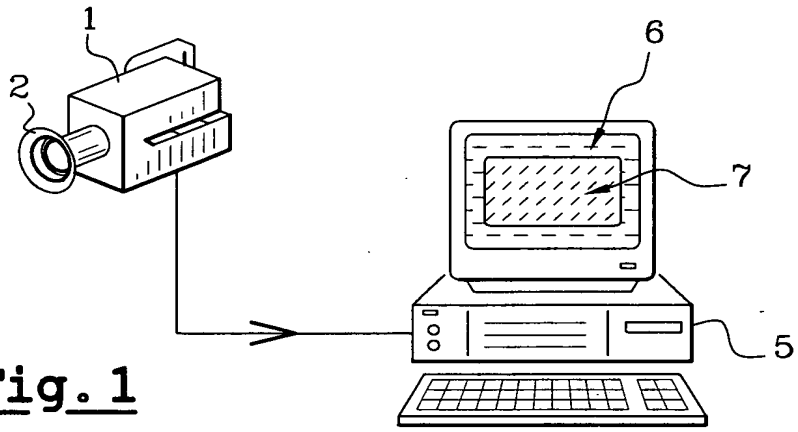

Fig. 1

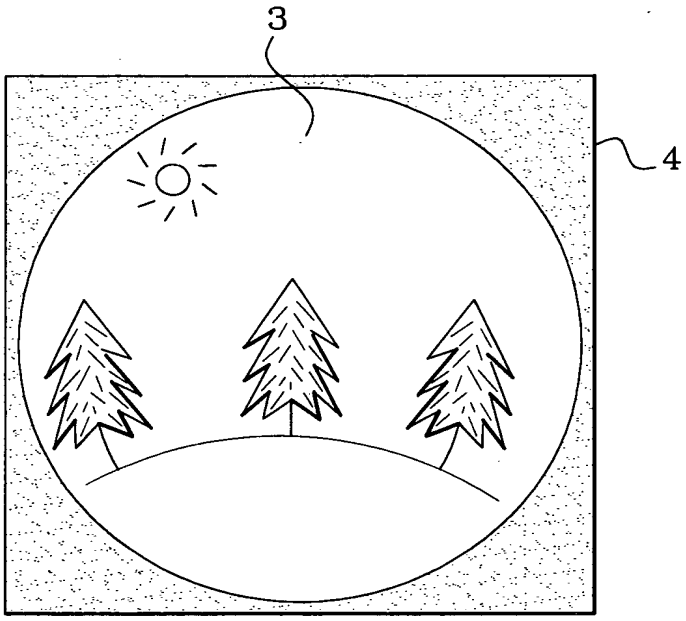

Fig. 2

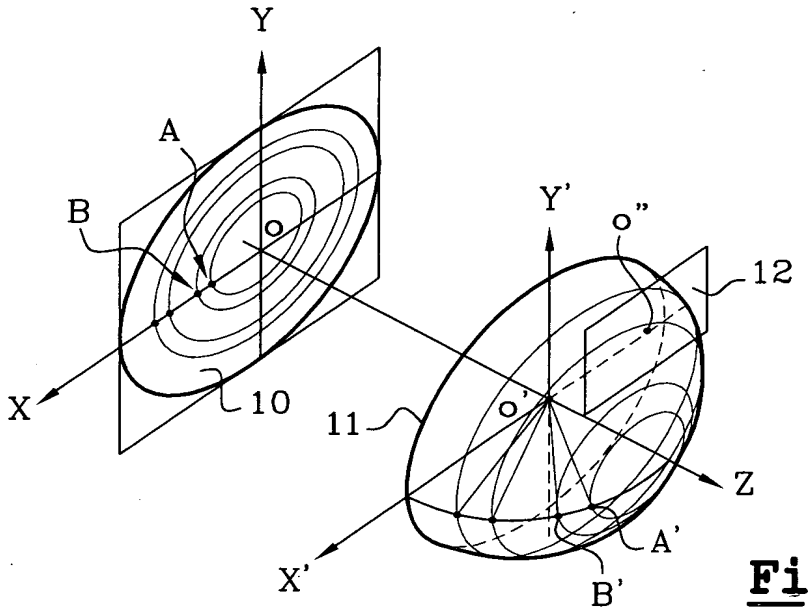

Fig. 3

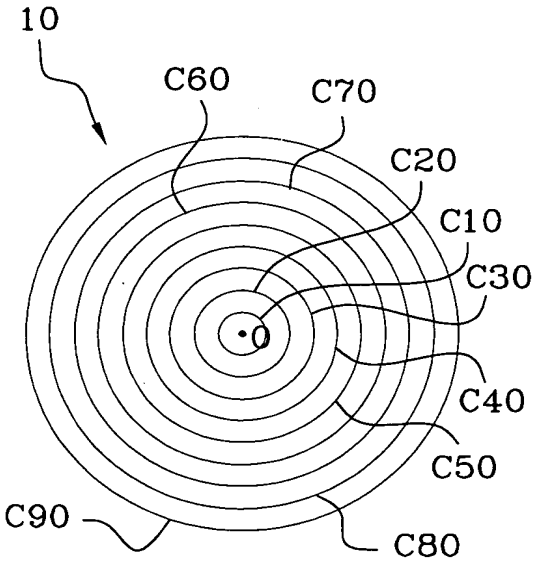

Fig. 4A

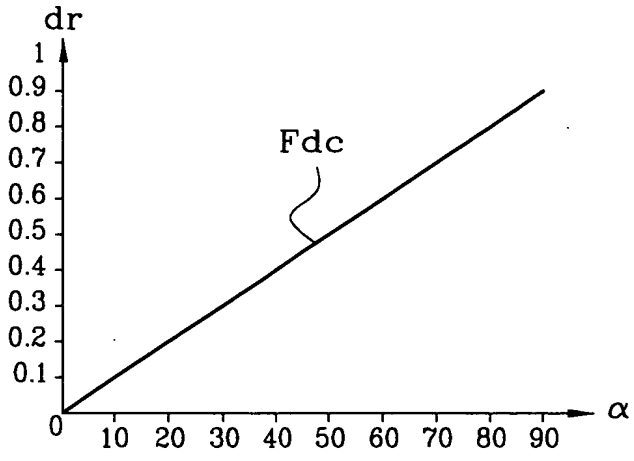

Fig. 4B

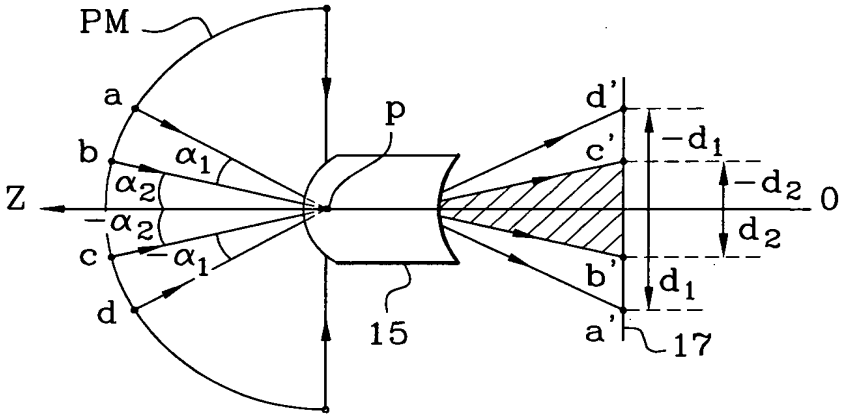

Fig. 5

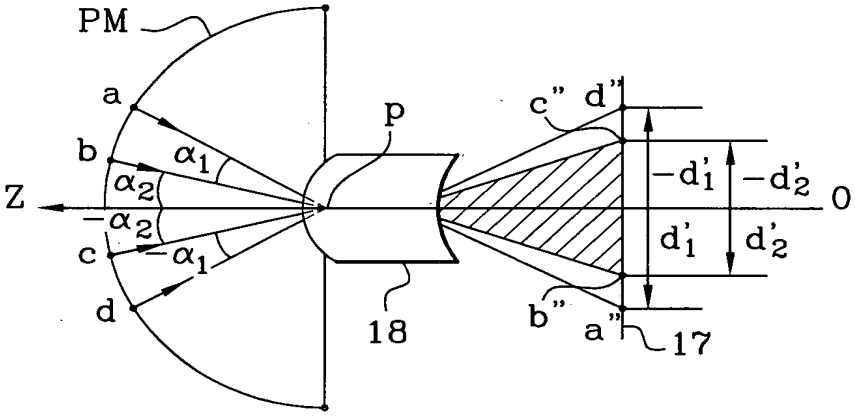

Fig. 6

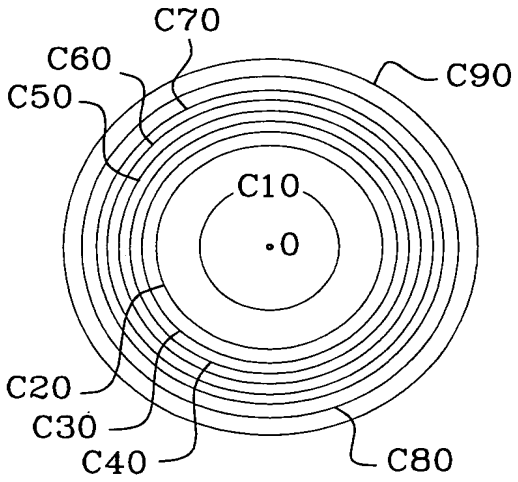

Fig. 7A

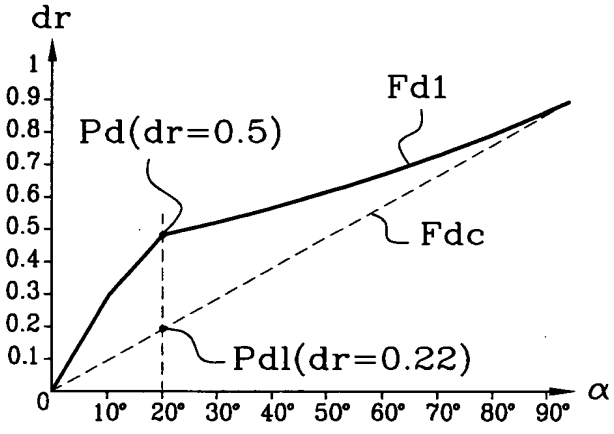

Fig. 7B

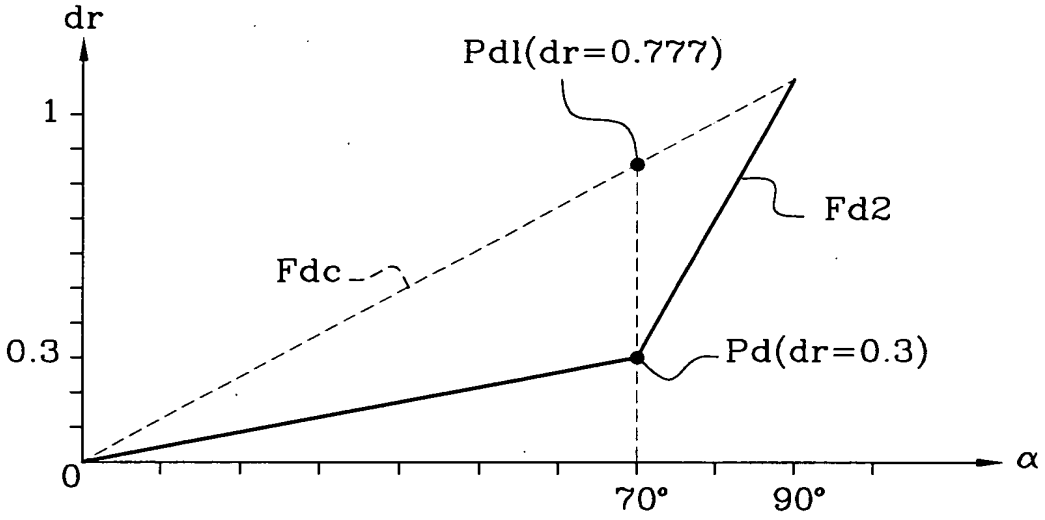
dr
1
0.3
0
Pdl(dr=0.777)
Fd2
Fdc
Pd(dr=0.3)
α
70°
90°

Fig. 8

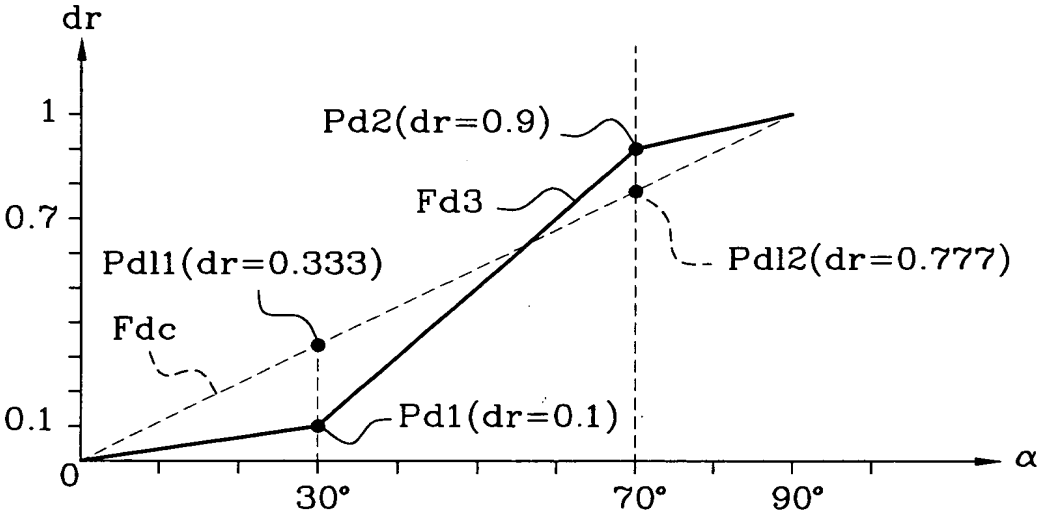
dr
1
0.7
0.1
0
Pd2(dr=0.9)
Fd3
Pdl2(dr=0.777)
Pdl1(dr=0.333)
Fdc
Pd1(dr=0.1)
α
30°
70°
90°

Fig. 9

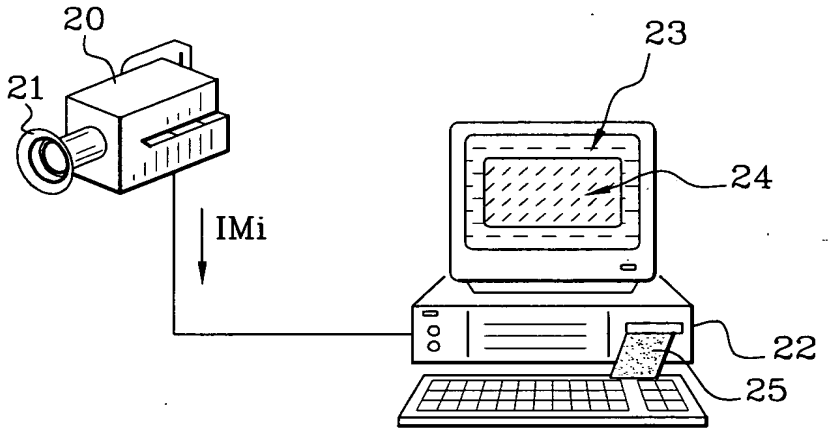

Fig. 10

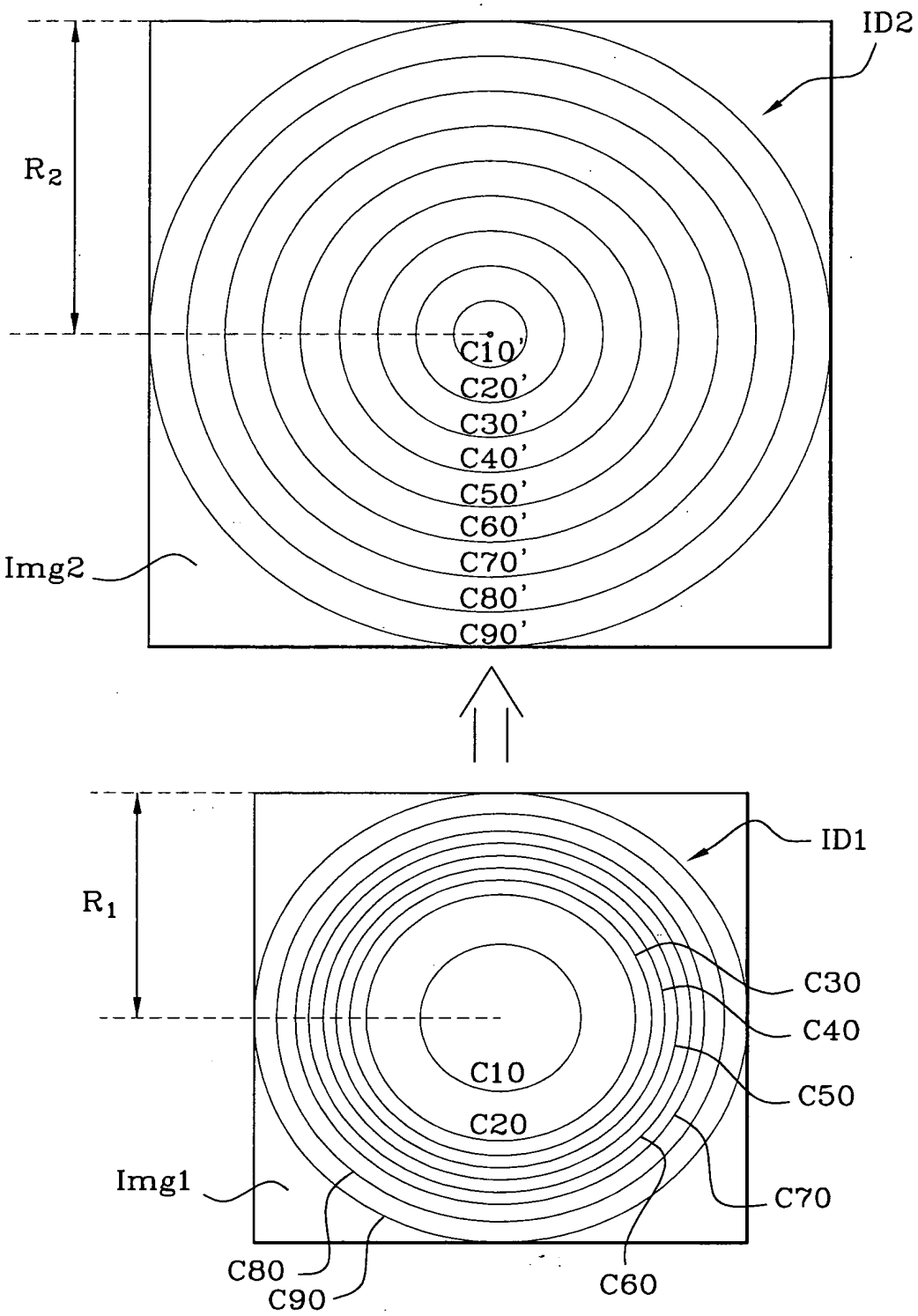
ID2
R2
C10'
C20'
C30'
C40'
C50'
C60'
C70'
C80'
C90'
Img2
ID1
R1
C30
C40
C10
C50
C20
Img1
C70
C80
C90
C60

Fig. 11

Fig. 12

S1 – Acquisition - Taking a panoramic image by means of a still digital camera or a digital video camera equipped with a panoramic lens having a non-linear distribution function Fd
S2 – Transfer of the image file into a computer - Transfer of the image file (image disk) into a microcomputer - Storage in the auxiliary storage (optional)
S3 -Linearisation of the image disk - Transfer of the image points of the initial image disk into a second virtual image disk comprising more image points than the initial image disk, by means of the function Fd^{-1} Obtaining a linear image disk
S4 – Digitisation - Transfer of the image points of the second image disk into a system of axes OXYZ in spherical coordinates Obtaining a panoramic image in a hemisphere
S5 – Interactive display - Determination of the image points of an image sector to be displayed - Display of the image sector on a display window - Detection of the user's actions on a screen pointer or any other control means, - Detection of the user's actions on keys for image enlargement, - Modification of the sector displayed (sliding the image sector displayed on the surface of the hemisphere and/or shrinking/expanding the image sector displayed)

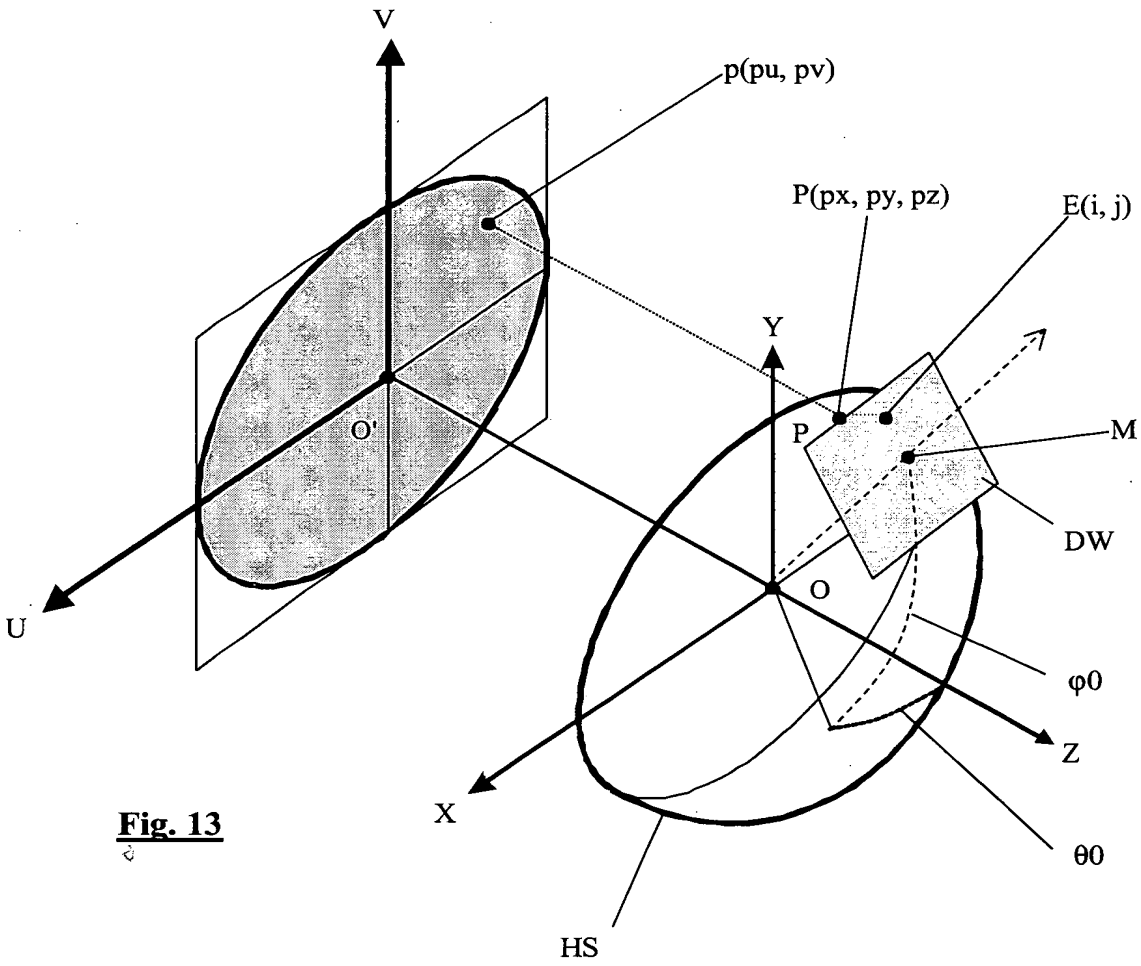

Fig. 13

Fig. 14

S1 – Acquisition
- Taking a panoramic image by means of a still digital camera or a digital video camera equipped with a panoramic lens having a non-linear distribution function Fd
S2 – Transfer of the image file into a computer
- Transfer of the image file (image disk) into a microcomputer - Storage in the auxiliary storage (optional)
S3' – Interactive display with implicit correction of the non-linearity of the initial image A - Determination of the colour of the points E(i, j) of an image sector to be displayed using the points p(pu, pv) of the image disk: 1- determination of the coordinates Ex, Ey, Ez in the coordinate system OXYZ of each point E(i, j) of the sector to be displayed, 2- determination of the coordinates Px, Py, Pz of points P of the hemisphere corresponding to the points E(i, j), 3- calculation of the coordinates, in the coordinate system O'UV of the image disk, of the points p(pu, pv) corresponding to the points P of the hemisphere, by means of the function Fd, B - Presentation of the image sector in a display window, C - Detection of the user's actions on a screen pointer or any other control means, D - Detection of the user's actions on enlargement keys, E - Modification of the image sector displayed (moving and/or shrinking/expanding the image sector)

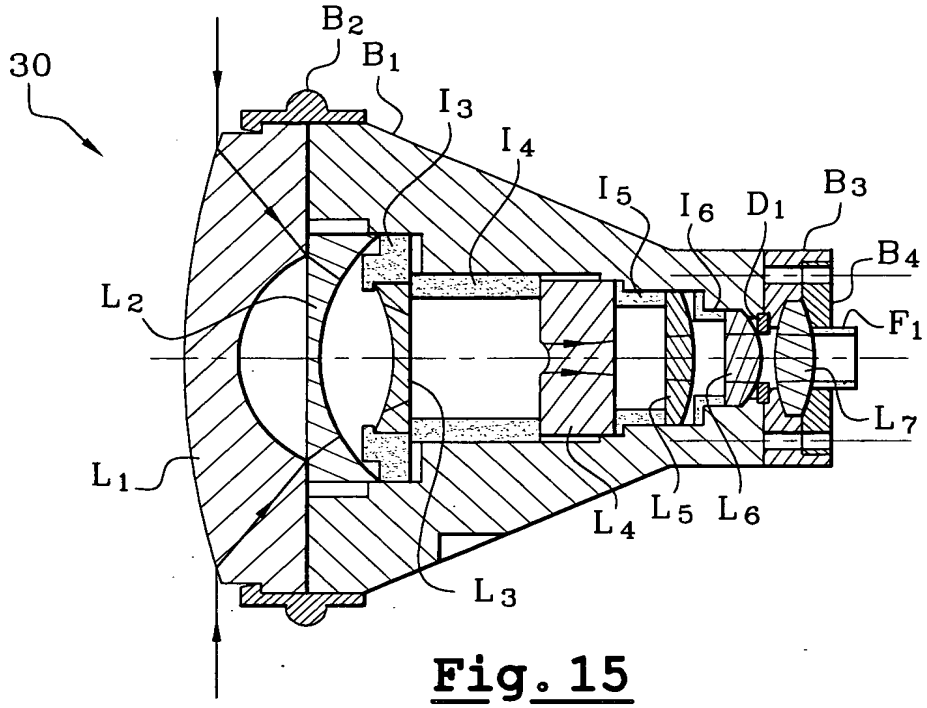

Fig. 15

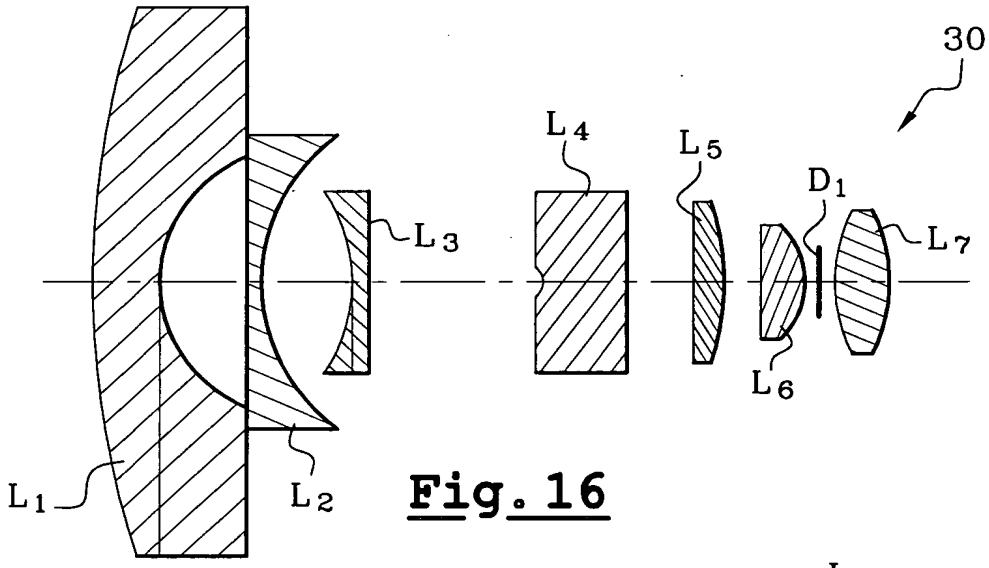

Fig. 16

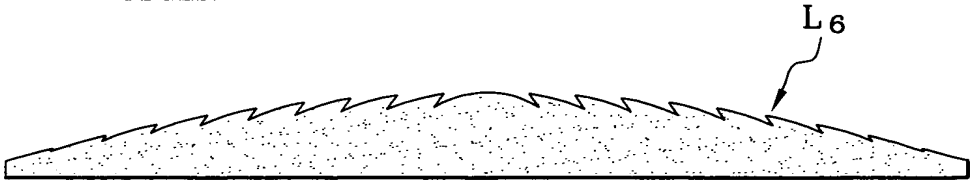

Fig. 17

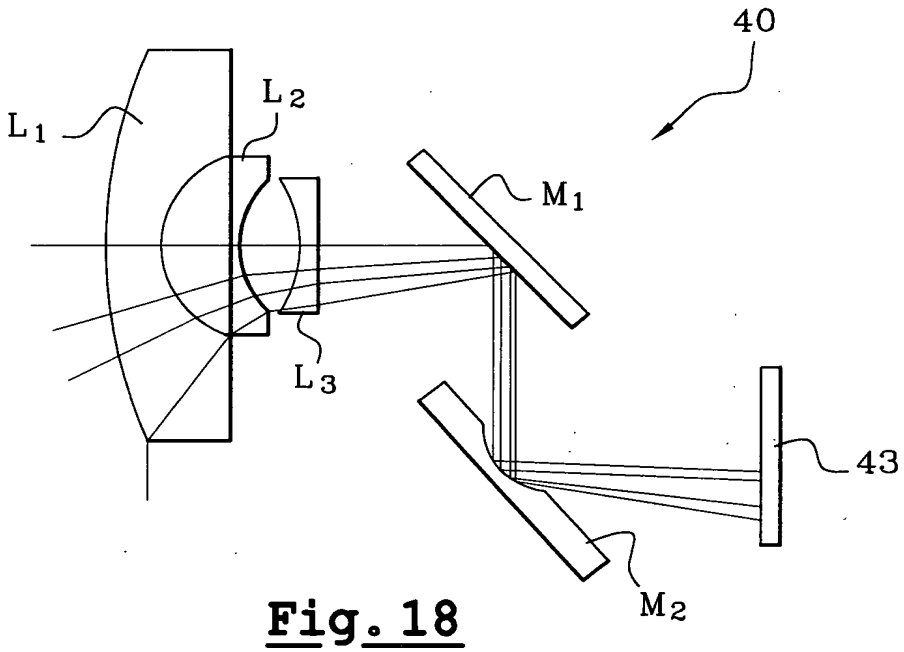

Fig. 18